



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/353,777

07/15/1999

HIROYUKI KAGAWA

500.37406X00

4076

20457

7590

12/24/2003

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-9889

EXAMINER

QI, ZHI QIANG

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/353,777

Applicant(s)

KAGAWA ET AL.

Examiner

Mike Qi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3 and 5-29 is/are allowed.
- 6) ☒ Claim(s) 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

The previous Final Rejection is not proper. According to the amendment filed on Nov.3, 2003 and further search, the claim 4 should be rejected. Therefore, a further non-final rejection is presented.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,229,586 (Date et al) in view of US 6,407,784 (Kanou et al).

Claim 4, Date discloses (col.3, line 55 – col.4, line 14; Fig.2) a reflection-type liquid crystal device comprising a pair of glass substrates (22, 23), a liquid crystal layer (25) sandwiched between the pair of substrates (22, 23), and a light reflector section (the section including a polyimide orientation film 36, electrode 35, organic film 32, and a metallic reflection film 33 made of metal such as silver) provided between the liquid crystal layer (25) and the substrate (23).

Date does not expressly disclose the light reflector section including a polymeric medium layer with fine silver particles precipitated on the surface.

However, Date discloses (col.3, line 55 – col.4, line 14; Fig.2) that polyimide orientation film 36, electrode 35, organic film 32, and a metallic reflection film 33 made

Art Unit: 2871

of metal such as silver are laminated so as to form a light reflector section. The polyimide orientation film (36) is a polymeric medium layer and the reflection film (33) is made of silver as the silver particles having a high reflectivity. Therefore, a light reflector section including a polymeric medium layer such as the polyimide orientation film and laminated with a fine silver reflector (precipitated on the surface that means the silver particles must be laminated to the surface) would have been obvious as the fine silver particles would increase the reflectance because the silver particles having high reflectivity.

Date does not expressly disclose that an electrode layer is further formed on one of the substrates and the light reflector section is provided between the electrode layer and the liquid crystal layer.

However, an electrode on a substrate and a light reflector is provided between the electrode and the liquid crystal layer that is common and known in the art, such as Kanou discloses (col.1, line 33 – 55; Fig.1) a conventional reflection type liquid crystal display in which a light-reflective electrode plate (24) (also can be a reflector section) is provided between the liquid crystal layer (14) and any electrode (such as drain or source or gate electrode layer and the electrode is formed on a substrate (2A)), and that is a conventional structure of a reflective type liquid crystal display.

Therefore, it would have been obvious to those skilled in the art to use a light reflector section including a polymeric medium layer with fine silver particles precipitated on the surface and the reflector section is provided between the liquid crystal layer and an electrode layer as claimed in claim 4 for achieving higher reflectance.

Allowable Subject Matter

3. Claims 2-3 and 5-29 are allowed.
4. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither discloses nor teaches a reflection-type liquid crystal device and a manufacture process comprising various elements and steps, more specifically, as the following:

the polymeric medium is composed of a silver-containing polyimide, and the polyimide containing the fine silver particles formed by reduction of monovalent silver [claim 2];

the light reflector section has a light reflector layer formed from a silver-containing photosensitive polymeric medium according to a photolithographic process, and the light reflector layer contains the fine silver particles so precipitated as to give electrical conduction through their mutual contact [claim 7];

the manufacture of making process comprising applying mixture containing monovalent silver and photosensitive polymeric medium, exposing the mixture to light, and precipitating fine silver particles on the surface of the light reflector layer [claims 18-19].

The closest references US 6,229,586 (Date et al), US 6,219,120 (Sasaki et al) and US 6,414,734 (Shigeta et al) disclose a reflection-type liquid crystal display device having laminated reflector section (polyimide orientation film and reflection film) in which

Art Unit: 2871

the reflection film is made of silver and the polyimide orientation film control the orientation of the molecules. However, the prior art of record do not disclose the silver-containing polyimide forming the light reflector layer and using mixture containing monovalent silver and the photosensitive polymeric medium (polyimide) forming the light reflector layer as claimed in claims 2, 7, 18 and 19.

Response to Arguments

5. Applicant's arguments with respect to claims 2-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703) 308-6213.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mike Qi
December 2, 2003


TOANTON
PRIMARY EXAMINER